

JOSÉ CUATRECASAS ARUMÍ (1903-1996)

H. E. Robinson, V. A. Funk, J. F. Pruski & R. M. King
Division of Synantherology, Department of Botany, MRC 166
Smithsonian Institution
Washington D.C. 20560, U.S.A.
mnhbo003@sivm.si.edu (VAF)

José Cuatrecasas died on May 23 1996, only about ten days after his last working visit to the U.S. National Herbarium. In his passing we at the Smithsonian have lost a fellow synantherologist, friend, and colleague. Don José worked right up until the end of his life, even in the hospital he continued to ask about preparations for the publication of his submitted manuscript on the Espeletiinae. In spite of his 93 years, Dr. Cuatrecasas' health had been such that it did not seem unrealistic that he would be able to return to his studies and we all expected to see him back at work. This was clearly his intention as is evidenced by his publication this year of the "preliminary" key to *Espeletiopsis*.

Don José, sometimes affectionately called Pepe, loved Botany and his warm nature was immediately apparent to all who knew him. He truly was a sweet, kind, and gentle man who was simultaneously proud of his accomplishments although very modest and humble. Staff and visitors in Botany, as well as in other departments, frequently visited him in his office. In fact, a stop in his office was very nearly part of the ritual of visiting the Smithsonian. He took obvious pleasure in showing them (and us) the wonderful plates of his Espeletiinae treatment and in ending such visits with a round of Guava paste for all. He humorously founded the "School for Style Branches" graduating his only two "students" (R. M. King and the late Kittie Parker) "Magna Cum Laude." He was genuinely interested in our work and was always a source of encouragement. He surprised one of us with the remark "I hear you are sinking one of my genera.... Bueno!", showing an attitude that was infectious to all. He had nothing but warm words for all. Atypically, however, upon learning that Generalissimo Franco would not live out the day simply and slyly said to one of us "I'll have to call home and ask Martha to put the Champagne on ice." His life was much influenced by politics, but this was a side of him that in later years would only occasionally surface.

The career of José Cuatrecasas extends from his birth, March 19, 1903, in Campodrón (Gerona), Spain, in the foothills of the Pyrenees, through his studies in Barcelona and Madrid (1924-1931) partly under the direction of P. Font Quer, graduate work in Berlin (1930-31) where he knew Adolph Engler, Directorship of the Sección de Flora Tropical del Jardín Botánico de Madrid (1933-39), the years in Colombia (1939-47), in Chicago (1947-1955) to his years in Washington (1955-1996). His early work included studies in Andalusia, early efforts at chemotaxonomy, and cooperation with the efforts of Macbride to photograph classical type specimens in the herbarium in Madrid. In 1985 a story was told of the manner in which he left Spain which Dr. Cuatrecasas later told the senior author was incorrect. Actually, he had been on a trip to South America as part of the Loyalist government mission honoring a historical event in Colombia. His intentions had been purely botanical, but they were not seen that way by the Franco government that gained power in his absence. If he had not been warned before returning to Spain on his way through France, his botanical career might have ended almost 60 years ago. It was a time when his professor, P. Font Quer, was imprisoned and his colleagues, Faustino Miranda and Manuel López-Figueiras, were arrested and driven from Spain. Return to Spain might have been possible during later decades of the Franco government, but Dr. Cuatrecasas did not choose revisit until after the government had changed.

Dr. Cuatrecasas' first publication was in 1924 and his last one is still in press. Over the years he published 262 papers (by our count), most of them single authored. For 73 years he published something nearly every year, missing only 1939, 1974, and 1983; an incredible accomplishment.

All synantherologists should be aware of some of his non-asteraceous accomplishments. These include the founding of Organization for Flora Neotropica; studies on the flora of Magina, Spain, published in the 1920's; monographs of Humiriaceae, Brunelliaceae, and *Theobroma*; and his *Prima Flora Colombiana*, which includes important revisionary studies in Burseraceae and Malpighiaceae.

Interest in Andean botany, that began while still in Spain, became the main thrust of the Cuatrecasas' research. Earlier studies included *Cecropia*, *Theobroma*, and genera of the Bombacaceae, Brunelliaceae, Burseraceae, Rubiaceae, Sabaceae, Simaroubaceae, Solanaceae, Violaceae, and studies of Cunoniaceae, Humiriaceae, Malpighiaceae continued through the period when Dr. Cuatrecasas was concentrating on the Asteraceae. The efforts in the Heliantheae subtribe Espeletiinae led to a completed manuscript that will be published on all the genera except *Espeletiopsis*. Work in the Senecioneae includes papers with Robinson and continued with a paper still to be published with S. Díaz-Piedrahita on Colombian

Pentacalia. Studies in the Astereae on *Diplostephium* and *Oritrophium* were also continuing at the time of Cuatrecasas' death.

Don José was an excellent photographer and his research files contain numerous photos, some on glass negatives, dating from his field work in Colombia in the 1930's and 40's. A selection of them with legends that he prepared were on display at the Montane Forest Symposium at the New York Botanical Garden, 1993. One of these is a cabin in the mountains made out of *Espeletia* (Figure 1). Currently the photos are on display in the Department of Botany, Smithsonian Institution.

Dr. Cuatrecasas received many honors in his long career, including festschrifts in Lazaroa, volume 5, 1983; in Flora Neotropica, Monograph, number 2, supplement, 1985; in Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales, volume 17, 1989; the Cruz de Boyacá awarded by the Colombian government, and the Gran Cruz de Alfonso X el Sabio by the Spanish government. Three additional tributes are found in Quercus 85: 16-18, 1993; Revista Academia Colombiana de Ciencias Exactas, Físicas y Naturales 20: 167-170, 1996; and Lazaroa 16: 7-8, 1996.

Dr. Cuatrecasas is an author or coauthor of two subtribes, Espeletiinae and Hinterhuberinae, and many genera of the Asteraceae: *Blakiella*, *Floscaldasia*, *Flosmutisia*, *Piofontia* (= *Diplostephium*), *Westoniella* of the **Astereae**; *Ascidogyne*, *Ellenbergia* of the **Eupatorieae**; *Carramboa*, *Coespeletia*, *Espeletiopsis*, *Paramiflos*, *Ruilopezia*, *Tamania*, *Thelechiton* (= *Sphagneticola*) of the **Heliantheae**; *Neocaldasia* (= *Gongylolepis*) of the **Mutisieae**; and *Arbelaezaster*, *Cabreriella*, *Dendrophorbium* as section, *Garcibarrigoa*, *Jessea*, *Paracalia*, *Paragynoxys*, *Talamancalia* of the **Senecioneae**. Also, he did important studies of other Asteraceous genera, *Baccharis*, *Hinterhubera*, *Llerasia*, *Loricaria*, *Mnioides*, *Philoglossa*, and *Vernonia* sect. *Critoniopsis*. A quick check of the Index Kewensis gives a list of 2391 records (novelties, his transfers, transfers by others based on his names, nomina novae) with Cuatrecasas in the author field of which an astounding 1307 are Compositae records. Few taxonomists can work in the family Compositae without making use of his work. At the time of the 1985 festschrift, Dr. Cuatrecasas was listed with B. L. Robinson, S. F. Blake, A. L. Cabrera, and H. Merxmüller, as individuals who had made truly constructive and insightful contributions to the study of the Asteraceae in the first three quarters of this Century.

Dr. Cuatrecasas collected extensively and in areas that were difficult to reach. Over the years many new taxa have been described based on his collections. Eight genera have been named in honor of Don José in five families, *Cuatresia* A. T. Hunziker, Solanaceae; *Cuatrecasea* Dugand, Palmae; *Cuatrecasasiella* H. Robinson, *Cuatrecasanthus* H. Robinson, *Joseanthus* H. Robinson, and *Neocuatrecasia* R. M. King & H. Robinson, all in the Asteraceae; *Cuatrecasasiodendron* Standley & Steyermark, Rubiaceae; and *Quadricasaea* Woodson, Apocynaceae. At the time of the festschrift in 1985, a list was produced of species honoring Don José in Musci, Hepaticae, Pteridophyta, Asteraceae, Begoniaceae, Berberidaceae, Bromeliaceae, Caryophyllaceae, Chrysobalanaceae, Cunoniaceae, Cyclanthaceae, Cyperaceae, Ericaceae, Gramineae, Guttiferae, Lauraceae, Leguminosae, Melastomataceae, Myristicaceae, Palmae, Piperaceae, Rosaceae, Rubiaceae, Sapotaceae, Sterculiaceae, Umbelliferae and Xyridaceae. Additionally, there are now species named for him in the following families: Acanthaceae, Actinidiaceae, Amaryllidaceae, Anacardiaceae, Annonaceae, Apocynaceae, Araliaceae, Asclepiadaceae, Brunelliaceae, Brassicaceae, Campanulaceae, Caparaceae, Chloranthaceae, Cistaceae, Convolvulaceae, Erythroxylaceae, Euphorbiaceae, Gentianaceae, Gunneraceae, Iridaceae, Lamiaceae, Malpighiaceae, Malvaceae, Menispermaceae, Moraceae, Onagraceae, Passifloraceae, Polygalaceae, Salicaceae, Saxifragaceae, Scrophulariaceae, Solanaceae, Theaceae, Valerianaceae, Verbenaceae, Violaceae, Zingiberaceae. We have found over 150 epithets honoring Cuatrecasas and they take a variety of forms: *cuatrecasae*, *cuatrecasana*, *cuatrecasasana*, *cuatrecasasanum*, *cuatrecasasi*, *cuatrecasasiana*, *cuatrecasasii*, *cuatrecasatis*, *cuatrecasii*, *cuatrecazanum*, *josei*, *pepei*, *quadridomius*, *tetroici*, and *tetroicia*. Tributes of this type will inevitably continue as the many collections by Cuatrecasas continue to be studied. The destruction of many localities since they were visited by him means that many of the Cuatrecasas collections will never be duplicated.

Cuatrecasas' extensive library has been given to the Botanical Garden in Barcelona and his files and travel descriptions to the Botanical Garden in Madrid. His research materials and photographs remain at the Smithsonian Institution.

His wife Martha died in 1986. He is survived by two sons, Pedro, a medical researcher in Ann Arbor, Michigan, and Gil, an artist residing in Barcelona, Spain; a daughter, Teresa Rivera, a teacher living in San Francisco, California; seven grandchildren and three great grandchildren. His ashes are to be returned to Spain. His memorial service, held in Washington shortly after his death, ended with the words "Farewell Don José, Farewell!"

Endowment Fund - The Smithsonian Institution is in the process of establishing an endowment fund to be named the "José Cuatrecasas Botanical Fund" that will honor Cuatrecasas' lifelong work in botany. His research was devoted to systematics and taxonomy, plant ecology, biogeography, and exploration and collecting, especially the family Asteraceae, in páramo and subpáramo regions of Andean South America, therefore, the fund will sponsor competitive botanical research in these areas through a biannual call for proposals. The proposals will be reviewed by a panel of scientists. The results of the funded projects will be dispersed widely in the botanical and related communities. Those wishing to contribute to the fund or request additional information should contact the Chairman, Department of Botany, at the address listed above.

DEGREES

Pharm. Lic., Barcelona, 1923

Dr. Pharm., Madrid, 1928 (Thesis: Flora and vegetation of the Magina Mountains, published 1929)

Postgraduate studies: University of Geneva, 1927; and Berlin-Dahlem, 1930-1934

POSITIONS

1924-1931	Assistant Professor of Botany, University of Barcelona
1932-1939	Full Professor of Systematic Botany, University of Madrid
1933-1939	Curator of Tropical Flora, Madrid Botanical Garden
1937-1939	Director, Madrid Botanical Garden
1939-1942	Professor of the Instituto Botánico (Universidad Nacional), Bogotá, Colombia
1942-1943	Director of the School of Tropical Agriculture, Cali, Colombia
1943-1947	Director of the Comisión Botánica del Valle and Professor at the Facultad de Agronomía del Valle, Cali
1947-1950	Curator of Colombian Botany, Chicago Natural History Museum
1951-1952	Guggenheim Fellow

- 1952-1955 Investigator, National Science Foundation grant, Chicago Natural History Museum
- 1955-1977 Investigator, National Science Foundation grants
- 1955-1996 Research Associate, Smithsonian Institution

HONORS AND AWARDS

- Honorary Member, Sociedad Geográfica de Colombia, Bogotá (1936)
- Honorary Member, Academia Colombiana de Ciencias, Bogotá (1937)
- Honorary Member, Instituto Ecuatoriano de Ciencias Naturales (1968)
- Honorary Member, Institució Catalana d'Historia Natural (1974)
- Member of the "Ateneo Nacional de Altos Estudios", Republica de Colombia (1941)
- Guggenheim Fellow (1951-1952)
- Honorary President, Sect. Phytogeographie, 8th Congrès International de Botanique, Paris (1954)
- Research Associate, Department of Botany, Smithsonian Institution (1955)
- Associate, Muséum National d'Histoire Naturelle, Paris (1959)
- Cruz de Boyacá, from the government of Colombia for scientific achievement for the benefit of Colombia (1959)
- Fellow, American Association for the Advancement of Science (1960)
- Henry Allan Gleason Award, from the New York Botanical Garden for the 1961 publication of "A taxonomic revision of the Humiriaceae" (1963)
- Member, Society of the Sigma Xi (1963)
- Scientific Director of Flora Neotropica (for Cormophyta) (1964-1971)
- Honorary Vice President, First Latin-American Congress of Botany, Mexico (1972)
- President of the Organization for Flora Neotropica (1972-1975)
- "Curador Asociado, ad honorem", Museo Nacional de Costa Rica (1978)
- "Profesor Honorario", Universidad Nacional de Colombia, Bogotá (1983)

Corresponding Member: Institut d'Estudis Catalans; Academia de Ciencias de Barcelona; Sociedad Cubana de Botánica; Academia de Farmacia de Cuba; Societat Catalana de Biologia

Director honorario del Real Jardín Botánico (CSIC)

Gran Cruz de Alfonso X el Sabio

Gran Cruz de la Orden del Mérito Civil (1995)

EXPEDITIONS AND COLLECTIONS

Europe

Collections and botanical trips from 1920 to 1939 in several countries, especially in Spain.

Africa

Canary Islands (Gomera, Gran Canaria, Tenerife, 1935)

South America

1932 - FIRST PERIOD, Colombia

Sponsored by the University and the Madrid Botanical Garden. Devoted to observations in plant ecology and plant collecting. Magdalena river; Cundinamarca, chiefly páramos; Ibagué, Nevado del Tolima and Valle de Cauca. Collection Numbers: 2000-3499.

1938 - SECOND PERIOD, Colombia

Partially sponsored by the University and the Madrid Botanical Garden. Devoted to observations in plant ecology and plant collecting. Cundinamarca, chiefly Macizo de Bogotá; Boyacá, Soatá-Cocuy, páramos of Nevado del Cocuy; Meta, Llanos del Meta and Orinoco (savannas) between Puerto López and Puerto Carreño, Llanos de Villavicencio. Collection Numbers: 1-1999 and 3500-4999.

1939-1942 - THIRD PERIOD, Colombia

Base for the explorations was Bogotá, being resident there as professor of the Universidad Nacional at the Instituto de Ciencias Naturales.

The regions explored during this period were chiefly the savannas of the Llanos of Meta-Vichada-Guaviare; rainforests of Caquetá river in Tres Esquinas, of Vaupés river from Cuduyarí to Calamar (Mitú, Cuduyarí, Tui-igarapé, Cananarí, Circasia,

Cubiyú, Yacayacá, Parana-midi, Miriú, Yuruparí, Pucarón, Carurú); of Apaporis (Río Popore); of Guaviare and Guayabero rivers; rainforests of Putumayo rivers from Concepción to Puerto Asís and its tributaries Sucumbios (San Miguel) and Guamués, and the lowlands to Mocoa; the Eastern Cordillera from Páramo de Tamá, through páramos of Pamplona, Santurbán, Almorzadero, Rusia, Arcabuco, Hüina, Bogotá, to Huila and Pasto region, exploring middle and high altitudes; Central Cordillera, chiefly the region of Nevado del Ruíz and Volcan Puracé; Western Cordillera near Popayán (Carpinterías) and Antioquia; part of the lower Magdalena valley and of Cauca valley. Collection Numbers: 5000-13,661.

1942-1947 - FOURTH PERIOD, Colombia

Base for explorations was Cali, where a professor of the Agronomy Faculty of El Valle, and the director of the "Comisión Botánica del Valle" (Government agency).

The following regions were especially explored and collected: Western Cordillera on both slopes and their highest peaks (Los Farallones), in several localities; rainforest of The Pacific Coast, along the low part of the rivers Micay, Naya, Yurumanguí, Cajambre, Anchicayá, Dagua, Calima, San Juan, and Togoromá; mangroves of the west coastal range; Central Cordillera around middle altitude and páramos of Barragán; the high valleys of the Tuluá and Bugalagrande rivers; páramos de Las Vegas; Río López (west slopes of Nevado del Huila); páramos of Puracé; mountain forests of Tacueyó and Moscopán; plains of Cauca Valley from Sevilla and Cartago to Cali and Popayán (from 900 to 2000 m). Collection Numbers: Cuatr. 13,662-24,016, also Killip & Cuatr. 38,613-39,212.

During most of these explorations, much ecological and plant distribution data were collected. Special emphasis was given to collecting trees and palms, as Colombia was extensively covered with primary forests. This fact made traveling and collecting more arduous and the collections consequently more valuable.

1958-1973 - FIFTH PERIOD

Base was Washington, DC., Smithsonian Institution, under NSF grant as principal investigator.

March-April 1958: Colombia

Chocó, collections near Quibdó; along Río Atrato and tributaries; and Antioquia, near Medellín and Páramo de los Baldíos; trip financed by UNESCO; expenses in part by NSF. Collection Numbers: 24,025-24,283, also Idrobo & Cuatr. 2664-2711.

September-December 1959: Colombia

Sierra Nevada de Santa Marta, SE range, on its highest páramos, between lakes Mamo, Mamito, and Naboba, between peaks Reina and Guardían, and upper part of Donachiú valley; Valley of Valledupar; Eastern Cordillera, northern end, Sierra de Perijá above Manaure (páramos of Floridablanca, Sabana Rubia, Cerro Venado, Cerro Avión); Macizo de Bogotá; Western Cordillera, near Cali (Cerro de los Cristales); Atlantic region, near Barranquilla and Guajira. Sponsored by the National Science Foundation and Smithsonian Institution, with assistance for inland transportation by the Ministerio de Agricultura de Colombia. Collection Numbers: 24,284-25,787.

August-November 1961

Trinidad

Imperial College of Tropical Agriculture, for study of cacao.

Venezuela

Region of Barlovento, for cacao.

Colombia

The following departments:

- (1) Cundinamarca: Several sections of the savanna and páramos around Bogotá up to 3700 m.
- (2) Valle del Cauca: Visiting plantations of old cocoa varieties near Palmira and Puerto Tejada, and the heavily forested lowlands of the Pacific coast in the Río Calima region.
- (3) Antioquia: Northern region (Chocó) around Villa Arteaga, looking especially for *Theobroma* and *Cecropia*, and collecting Andean cecropias in the Central Cordillera near the Boquerón.
- (4) Cauca: Páramos of Puracé and Guanacas, the latter a Hartweg type-locality.

Costa Rica

Turrialba and Puerto Limón, visiting cocoa plantations, páramos of Volcán Irazú and Maciso de Bellavista.

Nicaragua

Chinandega, looking for types of cacao. Collection Numbers: 25,750T-26,565.

October-November 1962**Colombia**

Valle del Cauca.

Brazil

Estado São Paulo: Cerrado de Cachoeira Emas; Estado Guanabara: Rio de Janeiro; Pará: Belém; research financed by NSF grant; trip paid by UNESCO. Collection Numbers: 26,567-26,668.

January-February 1965: Colombia

Cundinamarca: subarid region of municipio Mosquera, verada de La Punta and San Francisco, and Páramo de Guerrero; Valle: Cordillera Central (Río Amayme) and Occidental (Villa Colombia); Cauca: Quilichao-Piendamó; Nariño: Volcán Galeras. Research financed by NSF Grant; trip paid by UNESCO. Collection Numbers: 26,669-26,952.

December 14, 1968-March 15, 1969: Colombia

The regions explored were: the highlands, or páramos, of the Eastern Cordillera around the Massif of Bogotá-Sumapaz, mainly between 3000 and 3800 m; the highlands (2800-3800 m) of the Central Cordillera in the dept. of Cauca (Páramo de las Moras, Páramos de Paletera), the dept. Valle (Páramo de Pan de Azúcar), and the dept. Tolima (Subpáramo El Campanario, forest of Combeima valley); and the plain of the Valle del Cauca at middle altitude (900-1000 m) and slopes of the Cordillera above El Valle (1500-2500 m); the lowlands of the Pacific coast at Buenaventura and Calima river, mainly in search of wild *Theobroma* species; lowlands of the Caquetá region from Florencia, along the Río Ortegua, to the Río Caquetá, mainly in search of species of *Theobroma*, *Cecropia* and *Compositae*. Trip sponsored by NSF grant. Collection Numbers: 26,953-27,719.

September 1969: Colombia

From Bogotá to the Venezuelan border along the Eastern Cordillera, to collect *Compositae*, especially *Espeletia*, at classical localities. The páramos visited were those of La Rusia, Alto de Canutos, Caracoles, Las Gaitas, Hüina, Guantiva, de Chita, de Sácama, La Uvita, Cocuy and Güican in dept. Boyacá, Páramos de Perlaonso, Almorzadero and Santurbán in dept. Santander and Norte de Santander. Also the region of Ocaña (Norte de Santander and Cesar) was explored. Trip sponsored by NSF grant. The Universidad Nacional of Colombia contributed a vehicle for 20 days from Bogotá to Cúcuta with a driver and an assistant (Laureano Rodríguez). Collection Numbers: 27,720-27,991.

October-November 1969: Venezuela

The headquarters were the Universidad de los Andes in Mérida. With the vehicle which always was provided by the University, the following páramos were visited mainly in search of topo-types of *Espeletia* species. Páramos del Colorado, del Zumbador, del Batallón and Paramo de Tamá (Táchira); Páramo de La Negra, Páramo de Mucuchíes, de Piñango, de Los Granates, del Pico Espejo, de Loma Redonda, de La Aguada, Apartaderos, Mucubají, Mucuñuque, Laguna Negra, Laguna de Los Patos, de Mifafi, de Mucurubá, de La Carbonera-La Piñuela, de Pueblo Llano and Llano Corredor (Mérida). Páramos de Guirigay, de Jajó, La Cristalina, de Niquitao, de El Jabón, de Santa Rosa and de El Turma (Trujillo). Cerro Avila-Silla de Caracas (Federal District). Páramo de Tamá, state of Táchira, near the border with Colombia. Trip sponsored by NSF grant and helped by the Universidad de Los Andes, Mérida, which provided private and free transportation and assistance by professors L. Ruiz-Terán, M. López-Figueiras and/or L. Marcano-Berti. Collection Numbers: 27,992-28,250.

January-February-March 1973: Venezuela

The headquarters were again the Universidad de Los Andes in Mérida. Páramos de Tamá at the headwaters of Río Táchira, Páramo del Zumbador, Páramo del Colorado, Sub-páramo de La Grita, Páramo del Batallón, and Páramo de La Negra (Táchira). Páramos de San José, Zanjón de Cupís and Pozo Negro, de Quirorá, de Las Coloradas, El Morro, Sierra Nevada in Cañada Espejo, Loma Redonda and Aguada, Páramo de Mucuchíes, Sierra de Santo Domingo in Mucuñuque and Laguna Valencia (El Baho), Páramo de Piñango (Mérida). Páramos del Turmal, de Boconó and La Cristalina (Trujillo). Collection Numbers: 28,300-28,627.

March-April 1973: Colombia

The headquarters were at the Instituto de Ciencias Naturales, Bogotá. Páramo de Las Moras (Cauca) in the Central Cordillera, Páramos de Quilinsayaco and La Cocha (Nariño-Putumayo) at the southern massif. Eastern Cordillera, from Bogotá to the northern cities Pamplona and Bucaramanga at the following main spots (with Roberto Jaramillo): Páramos and subpáramos of Combita, Tunja, Río Pómea, Arcabuco, La Palma, Laguna de Tota, Páramos de La Sama, Río Cusiana, Santa Rosa de Viterbo-Floresta, Portachuelo, Alto de Las Cruces (Belen-Encino), Páramo de la Rusia, Páramo de Socotá, de Socha or Pisba, and Chita on

both sides, east and west, of the cordillera. Páramos de Grantiva, de Hüina and de Santa Rosita towards Gonzaga and Soatá, all in Boyacá. Further north, the departments of Santander and Norte de Santander from Bucaramanga and from Pamplona. The steep upper valley of Río Suratá was followed above La Baja ascending to the top of Páramo del Romeral and to the headwaters of Río Cucutilla (3600-3800 m). Other Páramos visited were those of Fontibón, Berlín, Santurbán and Vetás. In Cundinamarca, the subpáramo between Chocontá and Sesquilé. All explorations were limited to páramos and subpáramos, at altitudes between 2500 and 4200 m. Collection Numbers: 28,630-28,763A.

February 1978 and May 1979: Colombia

The last collecting trips made to Colombia. Collection Numbers: 28,770-28,798 and 28,819-28,967.

November 1978 and May 1980: Venezuela

The last collecting trips made to the Venezuelan Andes. Collection Numbers: 28,799-28,816 and 28,968-29,015.

PUBLICATIONS

(*Papers that involve members of the family Compositae or discuss the family in general)

1924

*Notes Botaniques. *Bull. Inst. Catalana Hist. Nat.*, Ser. 2, 4: 46-47.

1925

Algunos datos para la flora mixomicética de Cataluña. *Bull. Inst. Catalana Hist. Nat.* 5: 92-94.

1926

Excursion Botánica a Alcaraz y Riópar. *Trab. Mus. Ci. Nat. Barcelona* 5: 1-49.

**Montagnites radiosus* (Pall.) Holl. *Bull. Inst. Catalana Hist. Nat.* 6: 152-154.

Una nueva especie de *Rosa*. *Bull. Inst. Catalana Hist. Nat.* 6: 164-166.

1927

*Hallazgo de una especie desconocida de *Jurinea*. *Bol. Soc. Esp. Hist. Nat.* 27: 221-224.

Ascomicet nou per a Espanya. *Butl. Inst. Catalana Hist. Nat.* 7: 24.

Una forma de *Conium maculatum* var. *inmaculatum*, àdhuc en el jardí de la Universitat de Barcelona. *Butl. Inst. Catalana Hist. Nat.* 7: 132-133.

Kirchneriella lunaris (Kirch) Moeb. àdhuc a Catalunya. *Butl. Inst. Catalana Hist. Nat.* 7: 133.

Campanula Scheuchzeri var. nov. *zygomorpha* Cuatr. *Bull. Soc. Bot. Genève* 1927: 280-281.

1928

*Nota sobre et *Leucanthemum arundanum* (Bss.) Cuatr. *Cavanillesia* 1: 41-44 + 1 fig.

Leon Guignard. *Cavanillesia* 3: 118-119.

1929

*Estudios sobre to flora y to vegetación del macizo de Mágina. *Trab. Mus. Ci. Nat. Barcelona* 12: 1-510.

Notas micológicas. *Mem. Real Soc. Esp. Hist. Nat.* 15: 23-30.

En Romuald González Fragoso. *Butl. Inst. Catalana Hist. Nat.* 9: 49-51.

1930

*Adiciones y correcciones a mis estudios sobre Mágina. *Cavanillesia* 3: 8-19.

*Una visita al pinsapar de Sierra de la Nieve. *Butl. Inst. Catalana Hist. Nat.* 10: 65-67.

Una familia nova per a la flora micológica peninsular. *Butl. Inst. Catalana Hist. Nat.* 10: 79-80.

Adolf Engler. *Cavanillesia* 3: 196-198.

1931

*De flora pyrenaica. I. Ojeada a la cliserie del Valle de Ordesa. *Cavanillesia* 4: 113-127.

La fitosociología en las costas de Garraf. Barcelona.

Richard Wettstein. *Cavanillesia* 4: 161-162.

1932

Die Verbreitung von *Fagus silvaica* auf der Iberischen Halbinsel. *Veröff. Geobot. Rübel Zürich*, Heft 8, 1-21.

El bicentenario de Mutis en Colombia. *Res. Cient. Soc. Esp. Hist. Nat.* 7: 49-63.

Programa de la Enseñanza de botánica descriptiva en la Facultad de Farmacia, curso de 1932. 1933: 1-16. Madrid.

Discurso de don José Cuatrecasas en el homenaje del Colegio Mayor del Rosario. *Lecturas Dominicales* 436: 12.

1933

*Plantae Colombianae novae. *Trab. Mus. Nac. Ci. Nat., Ser. Bot.* 26: 1-31 + 2 plates.

1934

La composicion química en sistemática vegetal. *Ciencias (Madrid)* I, 1: 1-6.

Observaciones geobotánicas en Colombia. *Trab. Mus. Nac. Ci. Nat., Ser. Bot.* 27: 1-144.

Charles C. Lacaita. *Cavanillesia* 6: 137-139.

Robert Chodat. *Cavanillesia* 6: 139-141.

1935

*Plantae novae Colombianae. Series altera. *Trab. Mus. Nac. Ci. Nat., Ser. Bot.* 29: 1-48.

*Impresiones sobre la vegetación de los Andes en Colombia. *Revista Acad. Ci. Exact. Zaragoza* 18: 29-41. [1934]

*Programa de la enseñanza de botánica descriptiva en la Facultad de Farmacia, Madrid.

La *Viola cazorlensis*, su distribución, sistemática y biología (with H. Melchior). *Cavanillesia* 7: 135-148.

*Plantae Isermianae I. *Bol. Univ. Madrid.* 4: 206-265.

1936

Datos geobotánicos de una visita a Torremolinos (with M. Laza). *Bol. Soc. Esp. Hist. Nat.* 63: 287-290.

*Resumen de mi actuación en Colombia con motivo del II Centenario del nacimiento de Mutis. *Trab. Mus. Nac. Ci. Nat., Ser. Bot.* 33: 1-158.

1937

Don Carlos Pau. *Rev. Madrid. Cuaderm. Casa Cultura* 3: 1.

1938

La República reanuda la mejor tradición cultural española: La gran obra del botánico Mutis. *Bol. Inform. Inst. Cult. Minist. Instr. Publ. Barcelona* 2: 1-2.

1940

*Notas a la Flora de Colombia, I. *Revista Acad. Colomb. Ci. Exact.* 3: 247-250.

*Notas a la Flora de Colombia, II. *Revista Acad. Colomb. Ci. Exact.* 3: 425-438.

Nuevos encenillos de Colombia. *Ciencia (México)* 1: 253-254.

**Mutisia Caldasiana*, especie nueva de Colombia. *Ciencia (México)* 1: 308-309.

Una especie nueva de Bombacáceas en Colombia. *Ciencia (México)* 1: 401-402.

*Estudios sobre plantas andinas, I. *Caldasia* 1(1): 5-9 + 1 plate.

Palabras preliminares. *Caldasia* 1(1): 3-4.

1941

*Notas a la Flora de Colombia, III. *Revista Acad. Colomb. Ci. Exact.* 4: 158-169.

*Notas a la Flora de Colombia, IV. *Revista Acad. Colomb. Ci. Exact.* 4: 337-348.

Estudios sobre plantas andinas, II. *Caldasia* 1(2): 13-27.

*Impresiones sobre la vegetación de los Andes en Colombia. *España* 1: 14-16.

1942

*Notas a la Flora de Colombia, V. *Revista Acad. Colomb. Ci. Exact.* 5: 16-39.

Estudios sobre plantas andinas, III. *Caldasia* 1(5): 17-19.

Cucurbitaceae novae colombianae. -I. *Caldasia* 1(5): 21-28.

1943

*Estudios sobre plantas andinas. -IV. *Caldasia* 2: 5-9.

*Estudios sobre plantas andinas. -V. *Caldasia* 2: 209-240.

Algunos chites nuevos colombianos. *Ciencia (Mexico)* 4: 63-65.

Cucurbitaceae novae colombianae. -II. *Caldasia* 2: 141-148.

Resumen de unas observaciones geobotánicas en Colombia. *Revista Acad. Colomb. Ci. Exact.* 5: 289-294.

1944

*Notas a la Flora de Colombia, VI. *Trab. Com. Bot. Secr. Agric. Cali*. 43 pp.
[Reproduced in *Revista Acad. Colomb. Ci. Exact.* 6: 32-67.]

1945

Notas a la Flora de Colombia, VII. *Revista Acad. Colomb. Ci. Exact.* 6: 274-299.

*Estudios sobre plantas andinas, VI. *Caldasia* 3: 421-437.

Frailejones nuevos de Venezuela. *Ciencia (México)* 6: 261-267.

1946

Notas a la Flora de Colombia, VIII. *Revista Acad. Colomb. Ci. Exact.* 6: 533-551.

Notas a la Flora de Colombia, IX. *Revista Acad. Colomb. Ci. Exact.* 7: 47-52.

Vistazo a la vegetación del bajo Calima. *Publ. Secr. Agric. Fom. Valle (Colomb.)*: 42-60.

1947

Vistazo a la vegetación del bajo Calima (2nd edition). *Revista Acad. Colomb. Ci. Exact.* 7: 306-312.

1948

New mural shows plant life of Colombia's high Andes. *Bull. Chicago Nat. Hist. Mus.* 19(1): 1-3.

Studies in South American plants, I. *Lloydia* 11: 185-225.

1949

*Les espèces del gènere *Espeletia*. *Bul. Inst. Catalana Hist. Nat.* 37: 3-14.

*Rosette trees, a tropical growth form that defies mountain climate. *Bull. Chicago Nat. Hist. Mus.* 20(10): 6-7.

Guíferas nuevas o poco conocidas de Colombia. *Anales Inst. Biol. Univ. Nac. México* 20: 91-112.

Cecropia mocoana, *Cecropia Porvenirensis* and *Quararibea Schultesii*. In R.E. Schultes, *Plantae Colombianae XII. Bot. Mus. Leafl.* 14(2): 24-27, 31-32.

Borojoa, un nuevo género de Rubiáceas. *Publ. Sec. Agric. Ganad., Cali (Colombia)*, Agosto 1949. 4 pp.

1950

*Frailejónal, típico cuadro de la vida vegetal en los páramos andinos. *Revista Acad. Colomb. Ci. Exact.* 7: 457-461.

Borojoa, un nuevo género de Rubiáceas. *Revista Acad. Colomb. Ci. Exact.* 7: 478-481. (re-publication of 1949 article)

Notas a la Flora de Colombia, X. Guttiferae. *Revista Acad. Colomb. Ci. Exact.* 8: 33-64.

*Studies on Andean Compositae-I. *Fieldiana, Bot.* 27(1): 1-53.

Studies in South American plants-II. *Fieldiana, Bot.* 27(1): 55-113.

New and noteworthy Colombian trees. *Trop. Woods* 96: 37-47.

1951

New Proteaceae from Colombia. *Lloydia* 13: 198-204.

Notas a la Flora de Colombia, XI. *Revista Acad. Colomb. Ci. Exact.* 8: 297-328.

*Studies on Andean Compositae-II. *Fieldiana, Bot.* 27(2): 1-74.

Studies in South American plants-III. *Fieldiana, Bot.* 27(2): 75-113.

Luehopsis Schultesii and *Quararibea muricata*. In R. E. Schultes, *Plantae Austro-Americanae VII. Bot. Mus. Leafl.* 15(2): 49-52, 53-54.

Moraceae. In J. A. Steyermark, Contribution to the Flora of Venezuela. *Fieldiana, Bot.* 28: 210-216.

1952

Notas a la Flora de Colombia, XII. *Revista Acad. Colomb. Ci. Exact.* 8: 464-488.

Conuniaceae. In J. A. Steyermark, Contribution to the Flora of Venezuela.
Fieldiana, Bot. 28: 246-251.

Bombacaceae. In J. A. Steyermark, Contribution to the Flora of Venezuela.
Fieldiana, Bot. 28: 363-366.

1953

*Estudios sobre plantas andinas, VII. *Mutisia* 16: 1-8.

*Estudios sobre plantas andinas, VIII. *Mutisia* 17: 1-12.

Caracterización del género *Borojoa*. *Acta Agron.* 3: 89-98.

*Senecioneae andinae novae. *Collect. Bot. (Barcelona)* 3: 261-307.

*Neue und bemerkenswerte andine Compositen. *Feddes Repert. Spec. Nov. Regni Veg.* 55: 120-153.

Un nouveau genre de Bombacées, *Patinoa*. *Rev. Int. Bot. Appl. Agric. Trop.* 33: 306-313.

Huerteia, un genre nouveau pour la flore de Colombie. *Bull. Soc. Bot. France* 100: 159-163.

Une nouvelle espèce de *Theobroma*. *Rev. Int. Bot. Appl. Agric. Trop.* 33: 562-565.

*New taxa in the genus *Diplostephium*. *Bull. Torrey Bot. Club* 80: 401-408.

Notes on the cultivated Lulo (*Solanum quitoense*). *Bot. Mus. Leafl.* 16: 97-105
(with R.E. Schultes).

1954

Novelties in Bombacaceae. *Phytologia* 4: 465-480.

Five new species of *Brunellia*. *Phytologia* 4: 481-485.

*Dos moráceas y dos compuestas nuevas de Venezuela. *Bol. Soc. Venez. Ci. Nat.* 15: 107-111.

*New species of Compositae from Ecuador, collected by W.H. Camp. *Brittonia* 8: 39-49.

*Estudios sobre plantas andinas, IX. *Mutisia* 19: 1-9.

Disertaciones sobre Bombacáceas. *Revista Acad. Colomb. Ci. Exact.* 9: 164-177.

*Notas a la flora de Colombia, XIII. *Revista Acad. Colomb. Ci. Exact.* 9: 233-249.

*Synopsis der Gattung *Loricaria* Wedd. *Feddes Repert. Spec. Nov. Regni Veg.* 56: 149-172.

*Nouvelles Composées de l'Amérique de Sud. *Bull. Soc. Bot. France* 101: 242-246.

*Distribution of the genus *Espeletia*. *Rapports et Communications, Huitième Congrès International de Botanique, Paris*, sect. 4, pp. 131-132.

Outline of vegetation types in Colombia. *Rapports et Communications, Huitième Congrès International de Botanique, Paris*, sect. 7, pp. 77-78.

*El género *Mniodes*. *Folia Biol. Andina (Puno)* 1: 1-7.

Review of the Proceedings of the 7th International Botanical Congress (Stockholm, 1950). *Ciencia y Tecnología, Pan American Union* 4: 182-184.

1955

*A new genus and other novelties in Compositae. *Brittonia* 8: 151-163.

Taxonomic notes on neotropical trees. *Trop. Woods* 101: 10-28.

**Matisia apaporiensis* Cuatr. and *Stenopadus colombianus* Cuatr. & Steyer. *Bot. Mus. Leafl.* 17: 82-84, 99-100.

El genero *Meliosma* en Colombia. *Caldasia* 7: 187-211 (with J. M. Idrobo).

Establishment of a permanent Commission for the publications of a Tropical American Flora. *UNESCO/NA/HT/75*.

1956

*Neue *Vernonia*-Arten und Synopsis der Andinen Arten der Sektion *Critoniopsis*. *Bot. Jahrb. Syst.* 77: 52-84.

Notas a la Flora de Colombia, XIV. *Revista Acad. Colomb. Ci. Exact.* 9: 325-341.

*Nouvelles espèces de l'Amérique du Sud récoltées par Le Professeur Henri Humbert. *Notul. Syst. (Paris)* 15: 233-240.

*Studies on Andean Compositae-III. *Brittonia* 8: 179-193.

Studies in South American plants-IV. *Brittonia* 8: 195-200.

Moráceas nuevas de Colombia. *Caldasia* 7: 287-304.

*Notas a la flora de Venezuela. *Bol. Soc. Venez. Ci. Nat.* 17: 80-97.

*El género *Hinterhubera* Weddell. *Bol. Soc. Venez. Ci. Nat.* 17: 98-104 (with L. Aristeguieta).

Theobroma. In J.F. Macbride, Flora of Peru. *Field Mus. Nat. Hist., Bot. Ser.* 13: 650-660.

*Esquema sumariado de la vegetación de la Provincia Norteandina. *Suelos Tropicales, Medellín* 1: 13-30.

1957

Prima Flora Colombiana. 1. Burseraceae. *Webbia* 12: 375-441.

The American species of *Dacryodes*. *Trop. Woods* 106: 46-65.

Fanerógamas colombianas recientemente descritas de posible interés farmacológico. *Memoria del 3er Simposio de Farmacobotánica Americana, Habana*, pp. 103-109.

The Colombian species of *Tetrorchidium*. *Brittonia* 9: 76-82.

*A sketch of the vegetation of the North-Andean province. *Proc. 8th Pac. Sci. Congr. Bot.* (Manila, 1953) 4: 167-173.

1958

Notes on American Solanaceae. *Feddes Repert. Spec. Nov. Regni Veg.* 61: 74-86.

The Colombian species *Juanulloa*. *Brittonia* 10: 146-150.

Burseraceae (*Paraprotium amazonicum*). In R. E. Schultes, *Plantae Austro-Americanae* X. *Bot. Mus. Leaflet* 18: 156-158.

Prima Flora Colombiana. 2. Malpighiaceae. *Webbia* 13: 343-664.

*Aspectos de la vegetación natural de Colombia. *Revista Acad. Colomb. Ci. Exact.* 10: 221-268.

Introducción al estudio de los manglares. *Bol. Soc. Bot. México* 23: 84-98.

Report on the Tropical American Flora project. *UNESCO/INS/HT/78*, Paris. [Original in English, also translated into French and Spanish.]

1959

A critical new *Bursera* from Costa Rica. *Trop. Woods* 110: 30-32 (with L. O. Williams).

Studies on South American Plants-V. *Brittonia* 11: 163-172.

Burseraceae. In L.B. Smith, The Machris Brazilian Expedition, Botany. *Los Angeles County Mus. Contr. Sci.* 30: 4-6.

New chiropterophilous Solanaceae from Colombia. *J. Wash. Acad. Sci.* 49: 269-272.

1960

*Studies on Andean Compositae-IV. *Brittonia* 12: 182-195.

Supplemental notes on the American species of Passifloraceae with descriptions of new species [by J. Cuatrecasas]. By E. P. Killip. *Contr. U.S. Natl. Herb.* 35: 1-23.

*Dos Compuestas nuevas de Venezuela. *Bol. Soc. Venez. Ci. Nat.* 21: 302-306.

Prima Flora Colombiana. 2A. Malpighiaceae, Apéndice 1. *Webbia* 15: 393-398.

1961

A taxonomic revision of the Humiriaceae. *Contr. U.S. Natl. Herb.* 35: 21-214.

Burseraceae Brasiliae Novae. *Bol. Mus. Paraense Emílio Goeldi, n. s., Bot.*, 11: 1-10.

*Notas sobre Astereas Andinas. *Ciencia (México)* 21: 21-32.

*Studies on Andean Compositae V. *Proc. Biol. Soc. Wash.* 74: 7-28.

*Una nueva especie de *Erigeron* de Venezuela y Colombia. *Bol. Soc. Venez. Ci. Nat.* 22: 5-7.

A new Burseraceae from Santa Catarina. *Sellowia* 13: 261-263.

Humiriaceae. In Catalogo e Estadística dos Gêneros Botânicos Fanerogâmicos. *Inst. Paranaensis, Bot.* 54: 2.

Importancia de la ciencia en la educación. *Revista Acad. Colomb. Ci. Exact.* 11(43): IX-XIII.

1962

Studies in South American Plants-VI. *Brittonia* 14: 50-57.

Summary report of the Flora Neotropica project, at the São Paulo meeting.

1963

*Notes on Neotropical Compositae, I. *Phytologia* 9: 1-7.

El género *Theobroma* en la "Flora Peruviana et Chilensis" de Ruiz y Pavón. *Ciencia (México)* 22(4): 85-92 (with E. Alvarez López).

Una impresión personal de Paul Standley. In L. O. Williams (editor), *Homage to Standley*, pp. 88-89. Chicago Natural History Museum.

1964

Cacao and its allies; a taxonomic revision of the genus *Theobroma*. *Contr. U.S. Natl. Herb.* 35: 379-614.

*Miscelánea sobre Flora Neotrópica, I. *Ciencia (México)* 23: 137-151.

*Studies on Andean Compositae: VI. *Proc. Biol. Soc. Wash.* 77: 127-156.
Theobroma. Flora of Panama. *Ann. Missouri Bot. Gard.* 51: 89-97.

1965

*Some new Compositae from Peru. *Ann. Missouri Bot. Gard.* 52: 304-313.

Una Bombacácea nueva de Venezuela. *Bol. Soc. Venez. Ci. Nat.* 24: 153-155.

*Miscelánea sobre Flora Neotrópica, II. *Ciencia (México)* 24: 121-124.

1966

El género *Sorocea* (Moraceae) en la costa occidental de Colombia. *Ciencia (México)* 24: 185-188.

Establecimiento de la "Organización pro Flora Neotrópica." *Ciencia (México)* 24: 267-270.

1967

*Estudios sobre plantas Andinas, X. *Caldasia* 10: 3-26.

Moraceae. In J. A. Steyermark. Flora del Auyan-tepui. *Acta Bot. Venez.* 2: 202-205.

*Revisión de las especies colombianas del género *Baccharis*. *Revista Acad. Colomb. Ci. Exact.* 13: 5-102.

Plant introduction with *Theobroma cacao*. *Proc. Int. Symp. Plant Introd. (Tegucigalpa)*, pp. 137-145 (with E. P. Imle).

*Chromosome numbers in Compositae, XI, Peruvian species. *Ann. Missouri Bot. Gard.* 54: 172-177 (with B. L. Turner and A. M. Powell).

1968

Dos araliáceas nuevas de Colombia. *Collect. Bot. (Barcelona)* 7: 221-226.

*Páramo vegetation and its life forms. *Colloq. Geogr.* 9: 163-186.

1969

*Prima Flora Colombiana. 3. Compositae-Astereae. *Webbia* 24: 1-335.

*Notas adicionales, taxonómicas y corológicas, sobre *Baccharis*. *Revista Acad. Colomb. Ci. Exact.* 13: 201-226.

1970

Brunelliaceae. *Fl. Neotrop. Monogr.* 2: 1-189.

*Reinstatement of genus *Llerasia* (Compositae). *Biotropica* 2: 39-45.

Una nueva mirtácea frutal de la costa del Pacífico. *Mutisia* 32: 6-8.

La Organización pro Flora Neotrópica. *II Simposio y foro de biología tropical amazónica*. Bogotá, Colombia, pp. 284-286.

*Chromosome number in Compositae: Colombian and Venezuelan species. *Ann. Missouri Bot. Gard.* 57: 374-379 (with A. M. Powell).

*Observaciones sobre Compositae. *Anales Esc. Nac. Ci. Biol.* 18: 9-15. [dated 1969 and 1970, possibly printed and distributed in 1971]

1971

*Miscellaneous notes on neotropical flora. *Phytologia* 20: 465-481.

Cunoniáceas. In P. R. Reitz, *Flora Illustrada Catarinense*, pp. 1-22 (with L. B. Smith).

1972

*Miscellaneous notes on neotropical flora, II. *Phytologia* 23: 350-365.

A new species of ichthyotoxic plant from the Amazon. *Bot. Mus. Leafl.* 23: 129-136 (with R.E. Schultes).

*Miscelánea sobre flora Neotropical, III. *Ciencia (México)* 27: 171-184.

*Algo sobre Compositae en la Flora de Colombia. *Mem. Symp. I Congr. Latin-Amer. Mexico Bot.*, pp. 157-166.

Armando Dugand. *Taxon* 21: 377-378.

1973

*Miscellaneous notes on neotropical flora, III. *Phytologia* 25: 249-256.

*Synopsis of the genus *Philoglossa* (Liabeae, Asteraceae). *Phytologia* 26: 381-388 (with H. Robinson).

*Supplemental characterization of the genus *Pseudoconyza* (Compositae, Inuleae-Plucheinae). *Phytologia* 26: 410-412.

A new species of *Brunellia* from Panama. *Phytologia* 26: 485-486 (with D. M. Porter).

*Miscellaneous notes on neotropical flora, IV. *Phytologia* 27: 41-51.

*Miscellaneous notes on neotropical flora, V. *Phytologia* 27: 169-179.

*The generic limits of *Pluchea* and *Tessaria* (Inuleae, Asteraceae). *Phytologia* 27: 277-285 (with H. Robinson).

1975

*Miscellaneous notes on neotropical flora, VI. *Phytologia* 29: 369-385.

Brunelliaceae. Flora of Panama. *Ann. Missouri Bot. Gard.* 62: 11-14 (with D.M. Porter).

*Miscellaneous notes on neotropical flora, VII. *Phytologia* 31: 317-333.

*Chromosome numbers in Compositae, Colombian and Venezuelan species. *Taxon* 24: 675-676 (with A.M. Powell).

*Miscellaneous notes on neotropical flora, VIII. *Phytologia* 32: 312-326.

1976

- *A new subtribe in the Heliantheae (Compositae): Espeletiinae. *Phytologia* 35: 43-61.

Cecropia steyermarkii Cuatr., sp. nov. (Moraceae). *Bol. Soc. Venez. Ci. Nat.* 32(132-133): 231.

1977

- **Westoniella*, a new genus of the Astereae from the Costa Rican páramos. *Phytologia* 35: 471-487.

*Notes on the genus and species limits of *Pseudogynoxys* (Greenm.) Cabrera. *Phytologia* 36: 177-192 (with H. Robinson).

*Miscellaneous notes on neotropical flora, IX. *Phytologia* 38: 7-22.

1978

Una nueva crucífera de la Sierra Nevada del Cocuy (Colombia). *Caldasia* 12: 145-158 (with A.M. Cleef).

*Miscellaneous notes on neotropical flora, X. *Phytologia* 40: 25-36.

*A review of the Central American species of *Pentacalia* (Asteraceae: Senecioneae). *Phytologia* 40: 37-50 (with H. Robinson).

*Studies in neotropical Senecioneae, Compositae I. Reinstatement of genus *Lasiocephalus*. *Phytologia* 40: 307-312.

1979

*Growth forms of the Espeletiinae and their correlation to vegetation types of the high tropical Andes. In K. Larsen and L. B. Holm-Nielsen, eds., *Tropical botany*, pp. 397-410. Academic Press, London.

*Comparación fitogeográfica de Páramos entre varias Cordilleras. In M. L. Salgado-Labouriau, ed., El medio ambiente páramo, *Actas del seminario de Mérida, Venezuela*, pp. 89-99. Caracas, Centro Estudios Avanzados.

1980

Malpighiaceae. Flora of Panama. *Ann. Missouri Bot. Gard.* 67: 851-945 (with T. Croat).

*La inflorescencia en la taxonomía de las Espeletiinae (Heliantheae, Compositae). *Memorias, VI congreso venezolano de botánica, U.C.A., Maracay*, pp. 191-194. Facultad de Agronomía.

*Miscellaneous notes on neotropical flora, XI. *Phytologia* 45: 17-29.

*Neue Diterpene aus der Subtribus Espeletiinae. *Phytochemistry* 19: 267-271 (with R. Bohlmann, H. Wuding, R. M. King and H. Robinson).

*Neue Sesquiterpene und Norditerpene aus Vertretern der Gattung *Libanothamnus*. *Phytochemistry* 19: 1145-1148 (with F. Bohlmann, C. Zdero, R. M. King and H. Robinson).

*Tricyclic sesquiterpenes and further diterpenes from *Espeletiopsis* species. *Phytochemistry* 19: 2399-2403 (with F. Bohlmann, H. Suding, H. Robinson and R. M. King).

*Un nuevo género Colombiano de Senecioneae (Compositae). *Bol. Soc. Argent. Bot.* 19: 13-17.

*Miscellaneous notes on neotropical flora, XII. *Phytologia* 47: 1-13.

1981

*Miscellaneous notes on neotropical flora, XIII. *Phytologia* 49: 69-75.

*Studies in neotropical Senecioneae II. Transfers to genus *Pentacalia* of North Andean species. *Phytologia* 49: 241-260.

1982

*Miscellaneous notes on neotropical flora, XIV. *Phytologia* 52: 157-159.

*Studies in neotropical Senecioneae III. New taxa in *Senecio*, *Pentacalia* and *Gynoxys*. *Phytologia* 52: 159-166.

*Miscellaneous notes on neotropical flora, XV. New taxa in the Astereae. *Phytologia* 52: 166-177.

1984

*Observations of the genus *Gynoxys* in Ecuador (Senecioneae, Asteraceae) (with H. Robinson). *Phytologia* 56: 368-375.

1985

Brunelliaceae, Supplement. In *Fl. Neotrop. Mongr.* 2(Suppl.): 28-103.

*Miscelánea sobre flora neotrópica, IV. *Fontqueria* 8: 9-18.

*Studies in neotropical Senecioneae IV. New taxa in *Senecio* and *Cabreriella*. *Proc. Biol. Soc. Wash.* 98: 623-626.

*Studies in neotropical Senecioneae V. Two new species of *Pentacalia* from Colombia. *Phytologia* 57: 169-174.

*Nomenclatura plantarum Americanarum III. Compositae. *Phytologia* 58: 475-476 (with A. Lourteig).

1986

*Miscelánea sobre flora neotrópica, IV. Addenda. *Fontqueria* 9: 5-7.

*Un género nuevo de Astereae, Compositae, de Colombia. *Anal. Jard. Bot. Madrid* 42: 415-426.

*Miscellaneous notes on neotropical flora, XVI. New taxa in the Espeletiinae. *Phytologia* 61: 51-61.

*Dos géneros nuevos de Compositae de Colombia. *Caldasia* 15(71-75): 1-14.

*Speciation and radiation of the Espeletiinae in the Andes. In Vuillemier & Monasterio (editors), "*High Altitude Tropical Biogeography*" pp. 267-303. Oxford University Press.

1987

*Clave diagnóstica de las especies de *Ruilopezia* (Espeletiinae, Heliantheae, Compositae). *Anal. Jard. Bot. Madrid* 44: 401-419.

1988

Miscellaneous notes on neotropical flora, XVII. New species of *Meliosma*. *Phytologia* 64: 489-494.

Pius Font Quer, 1888-1964. In *Miscellania Botanica*. Llibre d'homenatge a P. Font Quer, pp. 59-63. Edicions Institut d'estudis Illerdcns.

Tres nuevas especies de *Meliosma* Blume (Sabiaceae) de Colombia (with J. Idrobo). *Ernstia* 49: 8-14.

1989

*Compuestas - Asteréas. In J.C. Mutis, *Flora de la Real Expedición Botánica del Nuevo Reyno de Granada XLVII*. Ediciones de Cultura Hispánica Madrid (with S. Díaz-Piedrahita).

1990

Miscelanea sobre flora neotrópica V. Algunas novedades en *Ilex*. *Revista Acad. Colomb. Ci. Exact.* 17: 631-635.

*El género *Aequatorium* Nordenstam (Senecioneae, Asteraceae) en Colombia. *Revista Acad. Colomb. Ci. Exact.* 17: 659-666 (with S. Díaz-Piedrahita).

Miscellaneous notes on neotropical flora, XVIII. New species in the Humiriaceae. *Phytologia* 68: 260-266.

*Miscellaneous notes on neotropical flora, XIX. Combinations in Senecioneae, Compositae. *Phytologia* 69: 313-315.

*Nuevas especies de *Pentacalia*. *Revista Acad. Colomb. Ci. Exact.* 17: 687-690 (with S. Díaz-Piedrahita).

1991

*Especie nueva de *Diplostephium* de Colombia y sinonimos de *D. ericoides* del Ecuador. *Revista Acad. Colomb. Ci. Exact.* 18: 123-125.

*Expediciones y colecciones entre 1942-1947, VALLE. *Cespedesia* 15-16(57-58): 17-38.

Miscellaneous notes on neotropical flora, XX. A new species of *Humiriastrum*. *Phytologia* 71: 165-166.

*Nueva especie de *Baccharis* (Asteraceae) de Colombia. *Revista Acad. Colomb. Ci. Exact.* 18: 127-129 (with S. Díaz-Piedrahita).

1992

**Thelechiton* Cuatrecasas, an older name for *Complaya* Strother (Ecliptinae-Heliantheae-Asteraceae). *Phytologia* 72: 141-143 (with H. Robinson).

*Additions to *Aequatorium* and *Gynoxys* (Senecioneae: Asteraceae) in Bolivia, Ecuador, and Peru. *Novon* 2: 411-416 (with H. Robinson).

1993

*Miscelanea sobre flora neotrópica VI. Dos especies nuevas de *Diplostephium* del Perú. *Revista Acad. Colomb. Ci. Exact.* 18: 475-477.

Miscellaneous notes on Neotropical flora XXI. A new species of *Humiriastrum* from Brazil. *Phytologia* 75: 235-238.

*New species of *Pentacalia* (Senecioneae: Asteraceae) from Ecuador, Peru, and Bolivia. *Novon* 3: 284-301 (with H. Robinson).

1994

*Miscellaneous notes on Neotropical flora XXII. Identification of the genus *Phyllostelidium* and a few new combinations in the Compositae. *Phytologia* 76: 402-405.

**Jessea* and *Talamancalia*, two new genera of the Senecioneae (Asteraceae) from Costa Rica and Panama. *Novon* 4: 48-52 (with H. Robinson).

*Adiciones al genero *Pentacalia* (Asteraceae, Senecioneae) en Colombia. *Revista Acad. Colomb. Ci. Exact.* 19: 21-23 (with S. Díaz-Piedrahita)

1995

*A new genus of the Compositae: *Paramiflos* (Espeletiinae) from Colombia. *Proc. Biol. Soc. Wash.* 108: 748-750.

1996

*Clave provisional de las especies del género *Espeletiopsis* Cuatrec. (Espeletiinae, Compositae). *Anales Jard. Bot. Madrid* 54: 370-377.

In Press

*Key to the species of *Oritrophium* (Asteraceae: Astereae). *BioLlania*, edición especial no.6: 000-000.

In 1993 Dr. Cuatrecasas wrote a short article for a volume to honor Dr. Richard Schultes. Although we have a copy of the manuscript we have no record of it having been published.



Fig. 1.

Paramo of Nevado del Cocuy, Boyaca, Colombia: Pozo Azul $\pm$ 4200 m alt. Cabin made with stems of *Espeletia lopezii* and (the roof) of *Calamagrostis effusa*. It is a good shelter, a free "hotel" for every temporary worker coming to this paramo. A big amount of *Espeletia* leaves on the ground inside served as a mattress for all "guests". The small tree at left: *Gynoxys paramuna*. The white Compositae herbs in front are *Senecio (Culcitium) canescens*. Bushes on the slope: *Pentacalia flos-fragrans* v. *frigidophila*, *Vaccinium floribundum*, *Diplostephium colombianum*, *D. rhomboidale*, *Valeriana arborea*, *Pentacalia guicanensis*, *P. andicola*, *Loricaria complanata*, *Miconia chionophila*, *Hypericum bryoides*, *Baccharis tricuneata*, etc.

Photo: J. Cuatrecasas, 12 Sept. 1938.